

Claims

1. A handover method between asynchronous and synchronous mobile communication systems for a Dual Band Dual Mode (DBDM) mobile communication terminal in a mobile communication network in which the asynchronous and synchronous mobile communication systems overlap each other, the mobile communication terminal having an asynchronous modem unit and a synchronous modem unit, comprising:

the first step of a radio network controller of the asynchronous mobile communication system periodically measuring a wireless environment around the mobile communication terminal;

10 the second step of the radio network controller determining whether handover is required using a blind decision method when wireless environment measurement values are less than predetermined threshold values, and informing an asynchronous mobile switching center of the asynchronous communication system that the handover is required;

15 the third step of the asynchronous mobile switching center requesting handover from a synchronous mobile switching center of the synchronous communication system, and the synchronous mobile switching center assigning a forward channel to the mobile communication terminal;

20 the fourth step of, as the asynchronous mobile switching center directs the mobile communication terminal to perform handover, the mobile communication terminal preparing communication with the synchronous mobile communication system, and causing a backward channel with respect to the synchronous communication system to be assigned to the mobile communication terminal; and

the fifth step of the synchronous mobile switching center informing the asynchronous mobile switching center of completion of the handover, thus releasing a connection between the asynchronous mobile switching center and the radio network controller.

2. The handover method according to claim 1, wherein the wireless environment measurement values comprise at least one of a round trip delay value and a block error rate.

3. The handover method according to claim 1, wherein the third step comprises the steps of:
5 the asynchronous mobile switching center requesting handover from the synchronous mobile switching center;

the synchronous mobile switching center requesting handover from a base station controller of the synchronous mobile communication system, and receiving an acknowledgement message for the handover request;

10 the base station controller transmitting null frames to the synchronous modem unit of the mobile communication terminal through a forward traffic channel, and assigning the forward channel to the mobile communication terminal; and

15 the synchronous mobile switching center transmitting an acknowledgement message for the handover request to the asynchronous mobile switching center, and the asynchronous mobile switching center transmitting the acknowledgement message for the handover request to the radio network controller.

4. The handover method according to claim 1, wherein the fourth step comprises the steps of:
20 the asynchronous mobile switching center directing the asynchronous modem unit of the mobile communication terminal to perform the handover, and transmitting channel assignment information to the asynchronous modem unit;

the asynchronous modem unit transmitting a handover direction message, including the channel assignment information, to the synchronous modem unit, and causing the synchronous modem unit to prepare the handover;

the synchronous modem unit preparing for communication with the synchronous mobile communication system upon receiving the handover direction message, and notifying the asynchronous modem unit that the preparation for communication has been completed when the preparation for communication is completed;

5 performing mode conversion between the asynchronous modem unit and synchronous modem unit of the mobile communication terminal; and

the synchronous modem unit transmitting frames to the base station controller of the synchronous mobile communication system through the backward channel, thus causing the mobile communication terminal and the synchronous mobile communication system to be connected.

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5. The handover method according to claim 4, wherein the step of the synchronous modem unit of the mobile communication terminal preparing for communication with the synchronous mobile communication system comprises the steps of:

performing switch-on and warm-up operations of the synchronous modem unit;

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acquiring a pilot channel and a synchronous channel from the synchronous mobile communication system;

the synchronous modem unit transitioning to an idle state; and

the synchronous modem unit of the idle state transitioning to a traffic state.

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6. The handover method according to claim 1, wherein the fifth step comprises the steps of: the mobile communication terminal informing the base station controller of the synchronous mobile communication system that handover has been completed;

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the base station controller notifying the asynchronous mobile switching center that handover has been completed through the synchronous mobile switching center of the synchronous mobile communication system;

the asynchronous mobile switching center requesting the radio network controller to release a call; and

the radio network controller releasing a connection with the asynchronous modem unit of a mobile communication terminal, and informing the asynchronous mobile switching center that the call has been released.

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